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PATENT SPECIFICATION

Application Date: May 6, 1938. No. 13549/38. **511,385**

Complete Specification Left: May 5, 1939.

Complete Specification Accepted: Aug. 17, 1939.

PROVISIONAL SPECIFICATION

Improvements in or relating to Couplings for Railway Vehicles

We, CYRIL IRVING BIRKBECK, a British Subject, of 66, Elmbank Way, London, W.7, ALFRED CECIL NEBLITT EAST, a British Subject, of 24, Park Avenue, London, N.W.2, and LONDON PASSENGER TRANSPORT BOARD, a British Corporate Body, of 55, Broadway, Westminster, London, S.W.1, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in couplings for railway vehicles and is particularly concerned with a coupling for use between vehicles which are normally permanently coupled together to form a train, such as are used for example on underground railways, the train being made up from the requisite number of motor and trailer coaches which are coupled in the workshops.

According to our invention a coupling or drawbar is formed by a pair of flanged sheet metal pressings riveted or welded togther with the flanges oppositely directed to provide on the upper and lower faces of the drawbar channels of substantial depth in which the usual cables and hoses between the coaches can be effectively housed. The two pressings are preferably identical and in plan are of substantially double arrow-head form to allow the cables and hoses at each end to be taken out laterally in a smooth curve on either side of the coupling pins and connected to unions or other detachable connections on the ends of the coaches.

A spacing plate or bar is preferably located between the two pressings to space them a short distance apart and annular housings are welded into apertures in the extremities of the pressings to receive roller or other bearings through which are passed the coupling pins by which the drawbar is pivotally connected to the usual spring-loaded or other draw-gear on the coaches.

The flanges on each of the pressings preferably extend along the straight sides of the central part of the pressing and along the inner sides of the outwardly flared ends of the pressings so that the cables and hoses are housed and protected over the full length of the drawbar. The electric cables are conveniently located in the channel of one pressing and the air or other hoses in the channel of the other pressing, the cables and hoses being retained in the channels by detachable cleats or clips.

Dated the 5th day of May, 1938.

CYRIL IRVING BIRBECK,
ALFRED CECIL NEBLITT EAST.
LONDON PASSENGER TRANSPORT BOARD,

The Common Seal of the London Passenger Transport Board was hereunto affixed in the presence of

HENRY N. MAYBURY, Member.
C. G. PAGE, Secretary.

COMPLETE SPECIFICATION

Improvements in or relating to Couplings for Railway Vehicles

We, CYRIL IRVING BIRKBECK, a British Subject, of 66, Elmbank Way, London, W.7, ALFRED CECIL NEBLITT EAST, a British Subject, of 24, Park Avenue, London, N.W.2, and LONDON PASSENGER TRANSPORT BOARD, a British Corporate Body, of 55, Broadway, Westminster, London, S.W.1, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

[*Price* 1/-]

This invention relates to improvements in couplings for railway vehicles and is particularly concerned with a coupling for use between vehicles which are normally permanently coupled together to form a train, such as are used for example on underground railways, the train usually being made up from the requisite number of motor and trailer coaches which are coupled in the workshops.

According to our invention a draw bar is provided having oppositely directed

flanges or walls so arranged along the bar than channels are formed along which the coupling hoses and cables between the vehicles can be effectively housed.

According to a preferred construction the coupling or drawbar is formed by a pair of flanged sheet metal pressings riveted or welded together with the flanges oppositely directed to provide on the upper and lower faces of the draw bar channels of substantial depth in which the usual cables and hoses between the coaches can be effectively housed. The two pressings are preferably identical and in plan are of substantially double arrow-head form to allow the cables and hoses at each end to be taken out laterally in a smooth curve on either side of the coupling pins and connected to unions or other detachable connections on the ends of the coaches.

A spacing plate or bar is preferably located between the two pressings to space them a short distance apart and annular housings are welded into apertures in the extremities of the pressings to receive roller or other bearings through which are passed the coupling pins by which the drawbar is pivotally connected to the usual spring-loaded or other drawgear on the coaches.

The flanges on each of the pressings preferably extend along the straight sides of the central part of the pressing and along the inner sides of the outwardly flared ends of the pressings so that the cables and hoses are housed and protected over the full length of the drawbar. The electric cables are conveniently located in the channel of one pressing and the air or other hoses in the channel of the other pressing, the cables and hoses being retained in the channels by detachable cleats or clips.

The appended drawings illustrate by way of example one constructional form of the invention and its manner of use.

Figure 1 is a fragmentary front view of the headstock and associated under frame members of one of the coupled vehicles of a train, with the coupling drawbar cut through centrally in vertical section.

Figure 2 is a plan of two end parts of such vehicle under frames and the coupling drawbar with the right hand side broken away for convenience of illustration.

Figure 3 is a plan of the drawbar assembly.

Figure 4 is a side view thereof.

Figure 5 is an end view of the drawbar.

Figure 6 is a sectional view on line 6—6 of Figure 2.

and Figure 7 is an elevation of a suitable clamping plate or cleat.

In Figure 2 of these drawings the ends of the underframes of two coaches, which are coupled by the drawbar made in accordance with the invention, are represented by *a*, *a* and the drawbar assembly is represented by *b*. The drawbar pins are indicated on this figure by the letter *c*, and one is shown in its relation to the drawbar *b* in Figure 6. The drawgear plates *d* between which a pin *c* is secured, are clamped on to the middle portion of a spring *e* within the housing *f*, they are omitted from Figure 1. A bearing for surrounding the pin *c* is marked *g* in Figure 6. Coupling cables between the vehicles *a*, *a*, are referred to by the letter *h*, and hose connections are indicated by *i* and *j*. As shown by dotted lines in Figure 2 the parts of the hose connections lying within the tray of the drawbar may be metal pipes which can be rigidly clipped in place.

The general views, Figures 1 and 2, are broken away on the right hand side of the Figures, but the cable and hose connections beyond the break are the same as those seen on the left of the Figure, but oppositely arranged.

The two main double arrow-head plates or trays of the improved drawbar are marked *k* and *m*, *k* being the upper tray and *m* the lower, inverted tray. A spacer bar *n* separates the median portions of the plates or trays when they are riveted together back to back, see Figure 1 and Figures 3, 4, and 5. The component tray ends forming the double heads *o* are separated by the web *p* of a stout bearing housing *q* which receives the other race of the bearing *g*, a convenient shape for this web *p* is seen in dotted lines in Figure 4. In addition to the rivets through the trays *k* and *m* where the spacer bar *n* and the web *p* are disposed between them, holes are provided at *r* for bolts which facilitate the clamping or locating of the coupling cables *h* by clip plates or cleats such as Figure 7 and further holes at *s* for the reception of bolts for similarly clamping the hoses *i* and *j*. The trays are welded around the bearing housing *q* as shown at *t* in Figure 6.

The flanges of the pressed plates or trays *k* and *m* are indicated by the letters *u* and *v* respectively. It is believed that the shape and arrangement of the parts of the drawbar and the method of use of these parts in the coupling of the coaches *a*, *a*, and their hose and cable couplings will be fully understood from the illustrations given.

The assembly of the drawbar and its pins *c* in the plates *e* of the drawgear will

be clear from Figures 2 and 6. A square neck on the pin fitting in a complementary hole in the upper plate *d* is shown at *w* Figure 6, and leather or other flexible cupped closure washers for the bearing *g* are shown at *x* in that Figure where they are backed by light steel or like pressings *y*.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed we declare that what we claim is:—

1. A coupling or drawbar for use between railway vehicles having oppositely directed flanges or walls so arranged along the bar that channels are formed along which coupling hoses and cables between the vehicles can be effectively housed.

2. A coupling or drawbar for use between railway vehicles which is formed by a pair of flanged sheet metal pressings riveted or welded together with the flanges oppositely directed to form channels of substantial depth on the upper and lower faces of the drawbar in which coupling hoses and cables between the vehicle can be effectively housed.

3. A coupling or drawbar for use between railway vehicles comprising in combination two double arrowhead pressings of metal with oppositely directed flanges along the edges of the straight sides of the centre parts and along the inner sides of the outwardly flared ends so that cables and hoses between vehicles can be housed between the flanges and protected over the full length of the drawbar.

4. A coupling or drawbar as in claim 2 or claim 3 in which the pressings are spaced apart by a spacer bar and by the extended webs from bearing housings, one of which is secured in each end of the coupling or draw bar.

5. A coupling or drawbar for use between railway vehicles constructed substantially as described and as illustrated by Figures 3, 4 and 5 of the accompanying drawings.

6. A coupling or drawbar assembly between the ends of railway vehicles arranged substantially as described herein and as illustrated by Figures 1, 2 and 6 of the accompanying drawings.

Dated the 24th day of April, 1939.

BARKER, BRETTELL & DUNCAN,
Chartered Patent Agents,
75 & 77, Colmore Row, Birmingham 3.

Leamington Spa: Printed for His Majesty's Stationery Office, by the Courier Press.—1939.

FIG

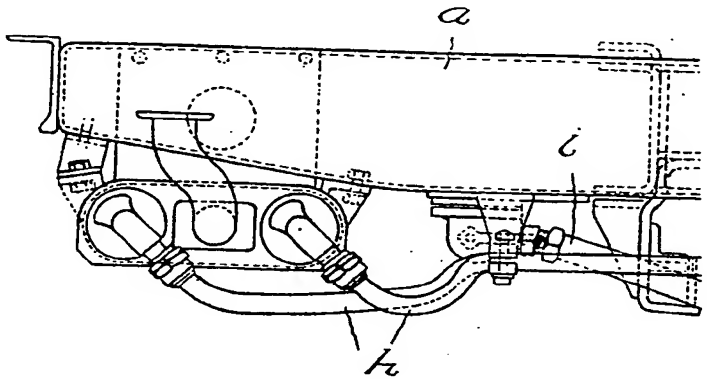
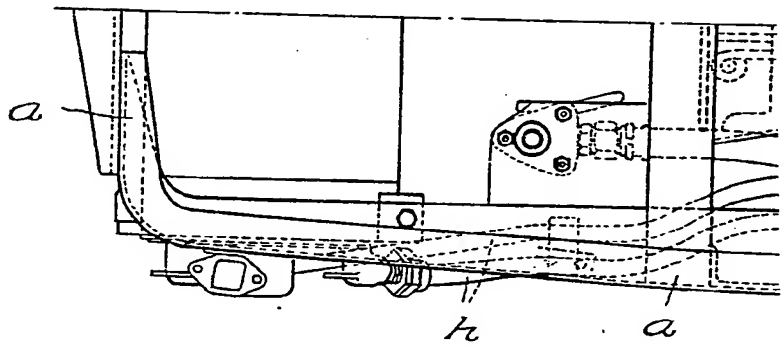


FIG.2



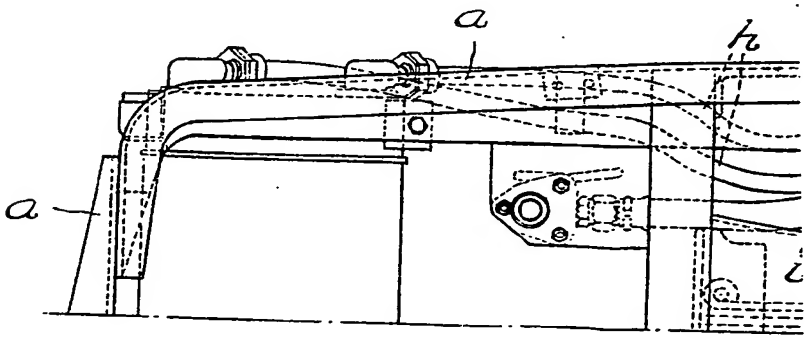


FIG.1

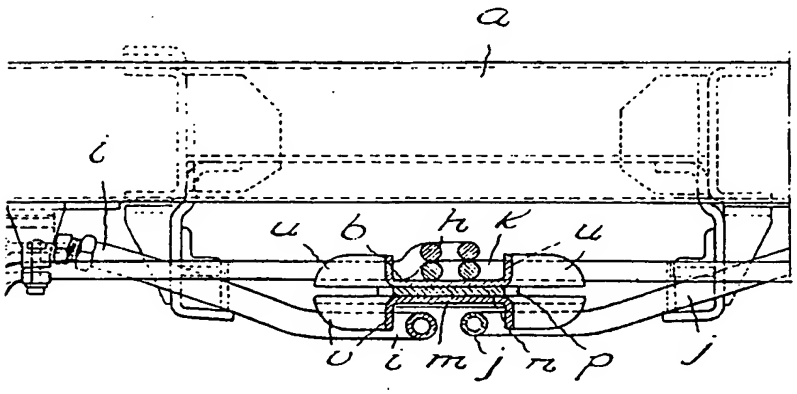


FIG.2

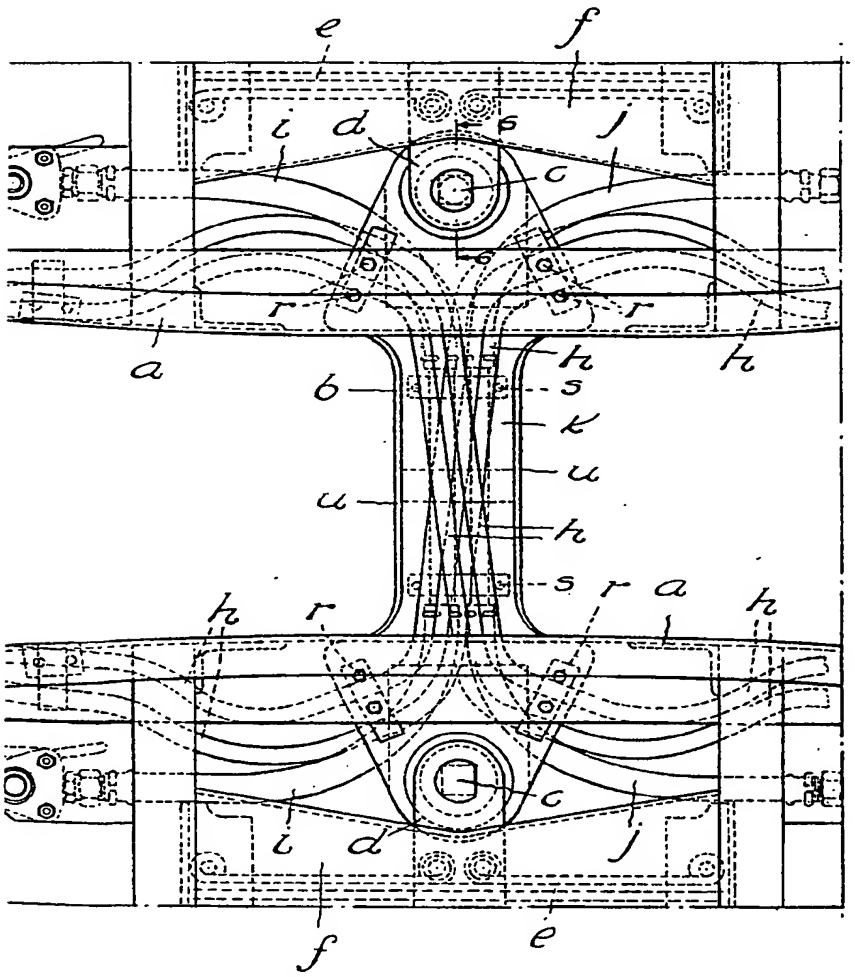


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FIG.1

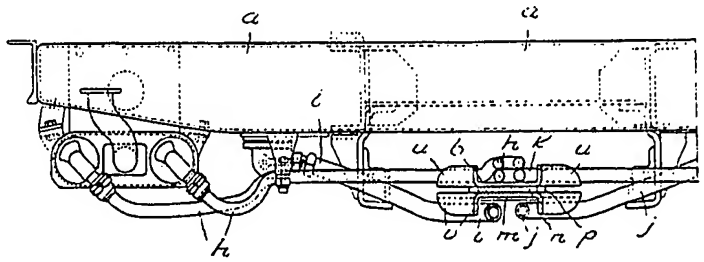

FIG.2

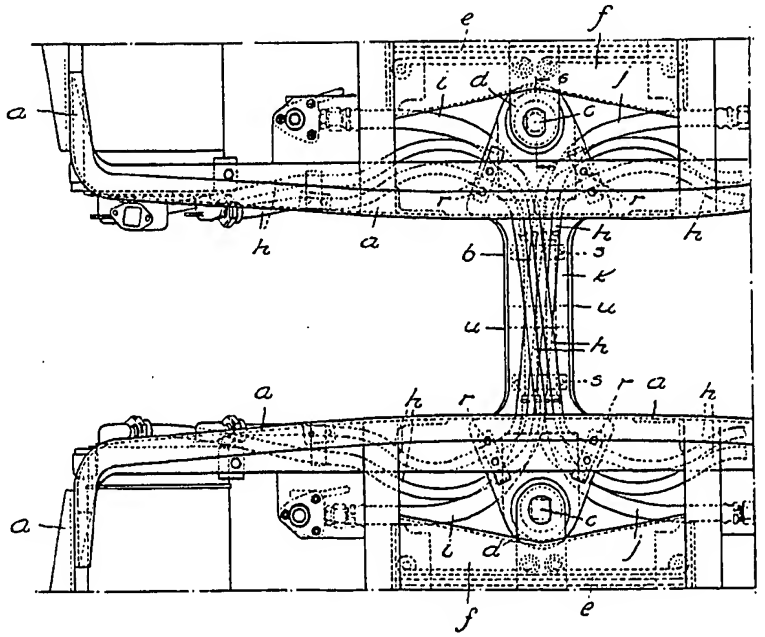

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FIG. 3

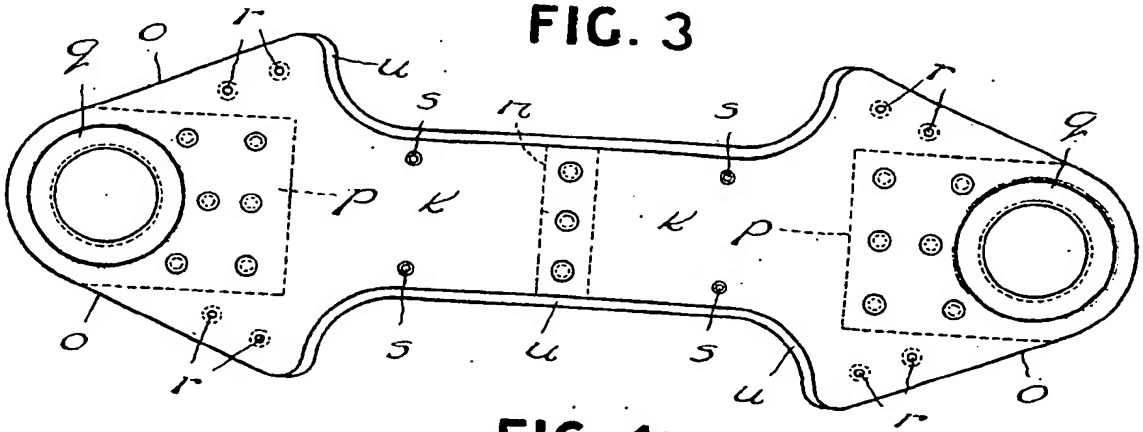


FIG. 4

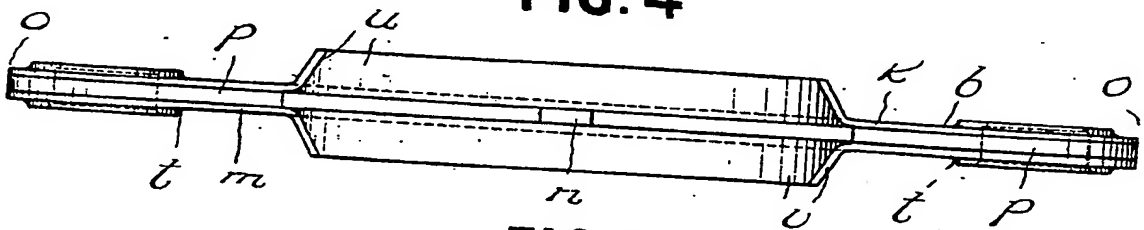


FIG. 5

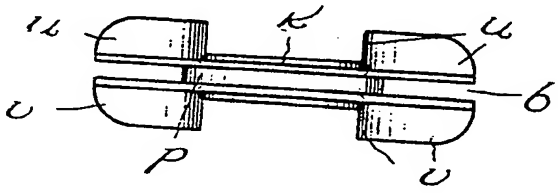
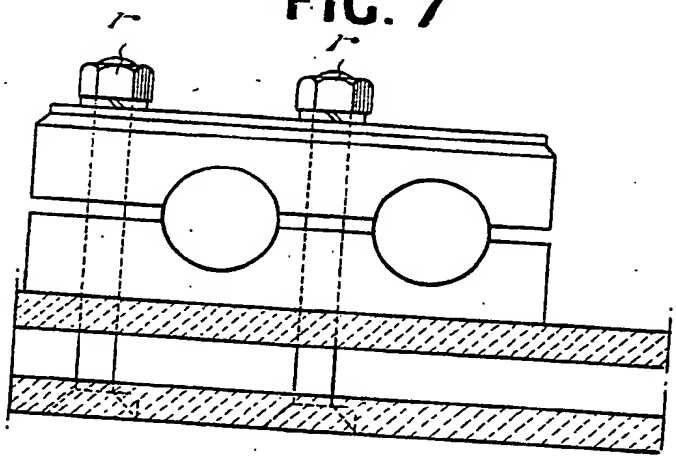
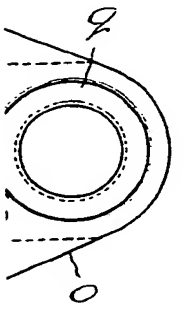


FIG. 7



SHEET 2



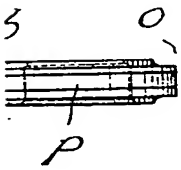


FIG.6

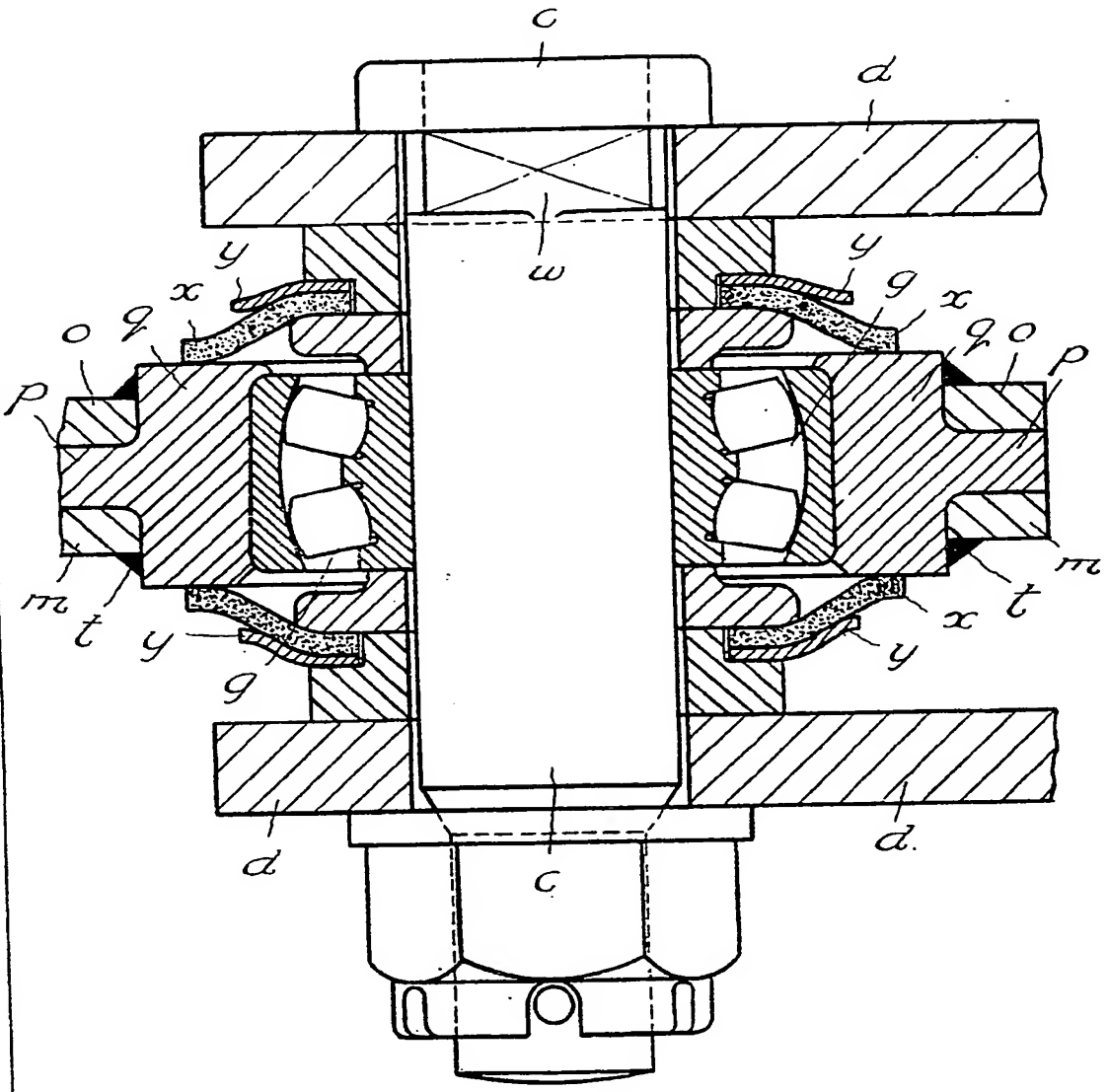


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FIG. 3

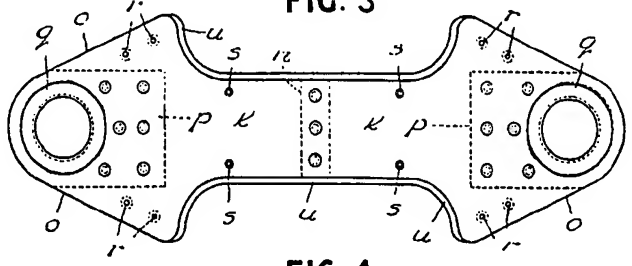


FIG. 4

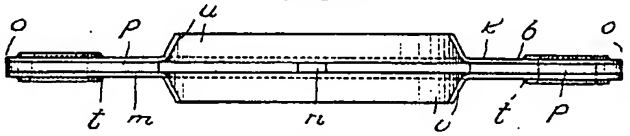


FIG. 5

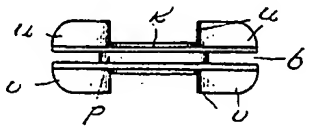


FIG. 7

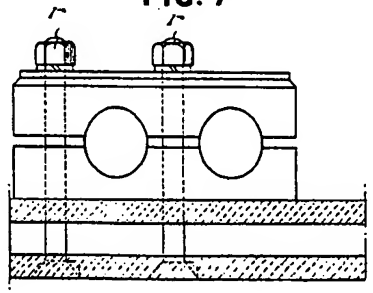
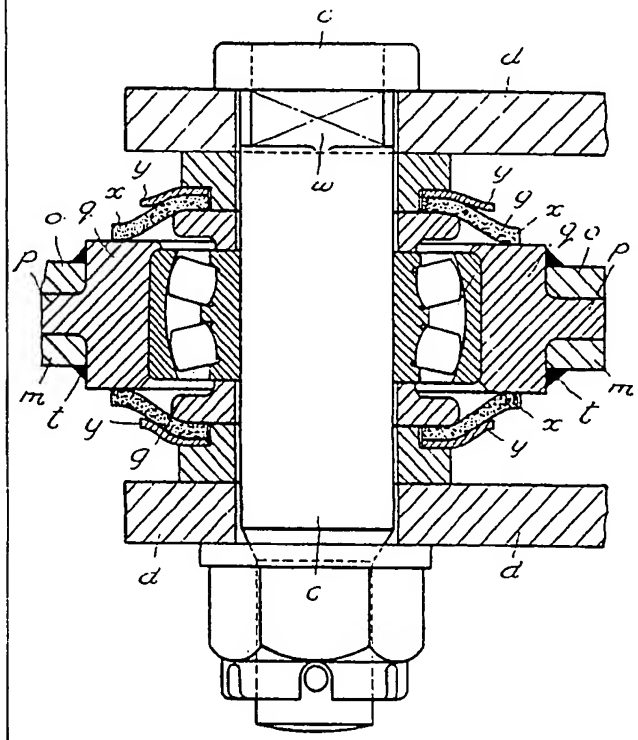


FIG. 6



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